

Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the above-identified application:

Listing of Claims

Claim 1 (Currently amended): An image retrieval apparatus for retrieving a desired image from a plurality of stored images, comprising:

storage means for storing the plurality of images and a set of image features of each of the plurality of images in a form correlated with the images, wherein the set of image features of each image include image features of ~~tiles~~ tile images obtained by dividing an image into a predetermined number of tiles;

feature calculation means for dividing a retrieval source image into the predetermined number of ~~tiles~~ tile images and ~~calculating~~ obtaining a set of image features for every tile by calculating an image feature of each of the tile images;

acquisition means for generating a set of image features by multiplying each of the image features constituting the set of image features ~~of the plurality of tiles~~ that have been stored in said storage means, by a constant, and acquiring plural sets of image features regarding one image by varying the constant;

similarity calculating means for calculating degree of similarity between each of the plurality of images and the retrieval source image based upon the plural sets of image features acquired by the acquisition means and the set of image features calculated by the feature calculation means, wherein said similarity calculating means calculates degree of similarity between each ~~set of image that has been stored in said storage means and the retrieval source image using~~ the plural sets of image features acquired by said acquisition means and the set of

image features calculated by said feature calculation means, and adopts maximum degree of similarity as the degree of similarity between a particular image and the retrieval-source image; and

retrieval means for retrieving the desired image from the plurality of stored images based on the degrees of similarity between the plurality of stored images and the retrieval source image, calculated by said similarity calculating means.

Claim 2 (Previously Presented): The apparatus according to claim 1, wherein said acquisition means generates N sets of image features by multiplying a luminance component of the image features that have been stored in said storage means by N constants.

Claim 3 (Previously Presented): The apparatus according to claim 1, wherein said acquisition means generates N sets of image features by multiplying a color-difference component of the image features that have been stored in said storage means by N constants.

Claim 4-6 (Canceled).

Claim 7 (Previously Presented): The apparatus according to claim 1, wherein said acquisition means has specifying means for allowing an operator to specify number of steps over which the constant is varied as well as the amount of change provided by each step.

Claim 8 (Cancelled).

Claim 9 (Currently amended): An image retrieval method for retrieving a desired image from storage means storing a plurality of images and a set of image features of each of the plurality of images in a form correlated with the images, wherein the set of image features of each image include image features of ~~tiles~~ tile images obtained by dividing an image into a predetermined number of tiles, said image retrieval method comprising:

a feature calculation step of dividing a retrieval source into the predetermined number of ~~tiles~~ tile images and ~~calculating~~ obtaining a set of image features for every tile by calculating an image features of each of the tile images;

an acquisition step of generating a set of image features by multiplying each of the image features constituting the set of image features ~~of the plurality of tiles~~ that have been stored in the storage means, by a constant, and acquiring plural sets of image features regarding one image by varying the constant;

a similarity calculating step of calculating degree of similarity between each of the plurality of images and the retrieval source image based upon the plural sets of image features acquired at said acquisition step and the set of image features calculated at said feature calculation step, wherein said similarity calculating step calculates degree of similarity between each ~~set of image that has been stored in said storage means and the retrieval source image~~ using the plural sets of image features acquired in said acquisition step and the set of image features calculated in said feature calculation step, and adopts maximum degree of similarity as the degree of similarity between a particular image and the retrieval-source image; and

retrieval step of retrieving the desired image from the plurality of stored images based on the degrees of similarity between the plurality of stored images and the retrieval source image, calculated by said similarity calculating means.

Claim 10 (Previously Presented): The method according to claim 9, wherein said acquisition step generates N sets of image features by multiplying a luminance component of the image features that have been stored in the storage means by N constants.

Claim 11 (Previously Presented): The method according to claim 9, wherein said acquisition step generates N sets of image features by multiplying a color-difference component of the image features that have been stored in said storage means by N constants.

Claims 12-14 (Cancelled).

Claim 15 (Previously Presented): The method according to claim 9, wherein said acquisition step includes a specifying step of allowing an operator to specify number of steps over which the constant is varied as well as the amount of change provided by each step.

Claim 16 (Cancelled).

Claim 17 (Currently amended): A storage medium storing a control program for causing a computer to execute image retrieval processing for retrieving a desired image from storage means storing a plurality of images and a set of image features of each of the plurality of images in a form correlated with the images, wherein the set of image features of each image include image features of ~~tiles~~ tile images obtained by dividing an image into a predetermined number of tiles, said control program comprising:

code of a feature calculation step of dividing a retrieval source image into the predetermined number of tiles tile images and ~~calculating~~ obtaining a set of image features for every tile by calculating an image feature of each of the tile images;

code of an acquisition step of generating a set of image features by multiplying each of the image features constituting the set of image features ~~of the plurality of tiles~~ that have been stored in the storage means, by a constant, and acquiring plural sets of image features regarding one image by varying the constant;

code of a similarity calculating step of calculating degree of similarity between each of the plurality of images and the retrieval source image based upon the plural sets of image

features acquired at said acquisition step and the set of image features calculated at said feature calculation step, wherein said similarity calculating step calculates degree of similarity between each set of image that has been stored in said storage means and the retrieval source image using the plural sets of image features acquired in said acquisition step and the set of image features calculated in said feature calculation step, and adopts maximum degree of similarity as the degree of similarity between a particular image and the retrieval-source image; and

code of a retrieval step of retrieving the desired image from the plurality of stored images based on the degrees of similarity between the plurality of stored images and the retrieval source image, calculated by said similarity calculating means.

Claim 18 (Cancelled).

Claim 19 (Currently amended): An image retrieval apparatus for retrieving a desired image from a plurality of stored images, comprising:

input means for inputting a retrieval source image, the retrieval source image including color components;

feature calculating means for obtaining a set of image features by calculating image feature of each color ~~components~~ component of the retrieval source image, respectively;

selection means for selecting one image from a plurality of images stored in a database;

reading means for reading a set of image feature features of the selected image;

generation means for generating a set of image features by multiplying ~~one of the calculated image feature and the image feature of the selected image~~ the set of image features of the retrieval source image or the set of image features of the selected image by a variable;

calculation means for calculating a set of degrees of similarity between the retrieval source image and the selected image, using the set of features generated by said generation means;

determination means for determining single degree of similarity from the set of degrees of similarity as a degree of similarity between the retrieval source image and the selected image; and

retrieval means for retrieving the desired image by repeating process by said selection means, said reading means, said generation means and said determination means.

Claim 20 (Currently amended): An image retrieval method of retrieving a desired image from a plurality of stored images, comprising:

an input step of inputting a retrieval source image, the retrieval source image including color components;

a feature step of obtaining a set of image features by calculating image feature of each color components component of the retrieval source image, respectively;

a selection step of selecting one image from a plurality of images stored in a database;

a reading step of reading a set of image feature features of the selected image;

a generation step of generating a set of image features by multiplying one of the calculated image feature and the image feature of the selected image the set of image features of the retrieval source image or the set of image features of the selected image by a variable;

a calculation step of calculating a set of degrees of similarity between the retrieval source image and the selected image, using the set of features generated in the generation step;

determination step of determining single degree of similarity from the set of degrees of similarity as a degree of similarity between the retrieval source image and the selected image;
and

retrieval step of retrieving the desired image by repeating process at said selection step, said reading step, said generation step and said determination step.